The NASA Marshall Space Flight Center's
Forum for Benchmarking Educational Partnerships

Breakout Discussions

Five teams of 8-10 people were given scenarios for action to address the challenge of ensuring a competent future workforce for aerospace and other high-tech industries. The scenarios ranged from "status quo" to an integrated stakeholder approach that would unify all parties to work on the workforce issues identified.

Team members were asked to talk for 3 minutes about impact of the availability of future workers, obstacles to company expansion, challenges to ensuring workforce, opportunities for a skilled workforce. Groups were free to deviate from the suggested scenario and structure, according to the needs of the group, resulting in notes that do not track exactly for each scenario. However, the main elements of discussion are captured here and can be used as the dialogue continues and action plans are developed.

Team #1 Status Quo

Actions continue as currently underway

Bonnie Hankins – moderator

IF WE STAY THE COURSE… (STATUS QUO)

- Go off-shore for the workforce
- Knowledge preservation issues
- Educating foreign nationals but cannot hire them
- Economic effects of foreign ownership of companies in the US
- Sputnik over again
- Be the best or be gone
- Continue to educate the stakeholder community to the need to not stay the course

- Lead by example
- Vote intelligently and do vote
- Downsize workforce
- Regional coalitions (like in AL)
- Teach them how to fish rather than give them a fish

GOALS IMPACTED

- Impacted because company cannot maintain nor acquire a skilled workforce
- Going to the Moon
- Decline in winning of contracts
- Technology diffusion

OBSTACLES

- Standardized tests
- School attitudes
- Teacher workloads
- Older workforce staying up-to-date with advances
- Companies often want "fresh outs" because they are cheaper to employ
- Management mindset ("We don't have the time to…")

CHALLENGES FOR SKILLED WORKFORCE

- Replenish an aging workforce (with needed skills)
- Management buy-in
- Budget/capital
- Cultural mindset (ethic mindset)
- Utilize corporate & education unions
- Too many requests to handle (e.g., Moonbuggy)
- Education and politics

OPPORTUNITIES

- Workforce aged 30-40
- Industry (corporate, government, school triangle) management to be aware of community umbrella organizations
- Community outreach to students & parents outside school setting
- Success in Moonbuggy race brought many requests from other schools to get involved; leverage other industry support & involvement

MISCELLANEOUS

- The whole school system needs to be revamped!
- Education is a privilege not a right
- Revise standards after reviewing TIMSS data regarding scope & sequence

Team #2 Industry Sector Alignment

Each sector begins to align its actions to work its industry sector future workforce issues

Becky Whitaker – moderator

TBE T'NG:

- Depends on steady availability of skilled workers
- Can't grow without workers
- Make sure have attractive work and resources are here for skilled workforce

ICRC:

- Needs scientists, engineers, technologists
- Small must have best in order to succeed, can't grow without pt service
- For this group to take all the programs, doing team building, move together

COLSA:

- Requirements of small businesses not being met by current educational offerings
- Challenge – not getting large business support
- Opportunities – get companies involved

ASRI:

- Look at students earlier
- Bringing programs to students/integrate into schools and communities – communicate
- Ensure basic knowledge base

MSFC SD45:

- Biological & physical research
- Very difficult to explain science to lower grades
- Opportunity – within areas of emphasis, something to publish in NASA outreach, work jointly to reach young people
- Challenge – funding, how to do more with what we have

MSFC HIGHER ED:

- Opportunity – Higher education outreach programs have not had a lot of openings for students, more students than available $, will lose large numbers of students because of low $
- Challenge – Can't do as much with programs as we would like, figure out how to get best bang for $, combine programs

MRC:

- Impact – on verge of running out of tasks for students
- Challenge – company can lobby for space exploration initiatives, public & Congress
- Impact & Obstacle – need to FOCUS and DO IT NOW

MSFC SD:

- Impact – Space exploration down due to shift in $ and culture
- Far future – ultimate impact, no Moon base or trip to Mars
- Without a rebirth of interest, we will decline

DISADVANTAGES:

- Overspecialized workforce? Sometimes must have the specialty
- Overlapping initiatives waste resources
- How can we affect the 0-6 yrs child
- Educate the parents
- Industry align with existing programs
- Only dominant industry would have workforce flow – supply/demand, now have over # of computer folks
- Cost per company would increase
- Would continue to be unsuccessful
- Gather industries together in focus groups then bring everyone together for continued development

ADVANTAGE?

INDUSTRY SECTOR ALIGNMENT – NOT RECOMMENDED

Team #3 Stakeholder Alignment

Stakeholder groups begin to align into actions to work their respective future workforce responsibilities

Brenda Terry – moderator

IMPLICATIONS:

- Need for communication
- Identify common skill sets
- Partial solutions/connect

OPPORTUNITIES:

- Industry stakeholder collaboration
- Career exploration
- Better understanding
- Staff development w/Industry

ACTION:

- Initiative w/performance standards
- Roundtable evaluations

CHALLENGES:

- Hiring
- Budget issues
- Visions?
- RIFs
- Graying workforce
- School curricula alignment
- Testing
- Parental education
- Tech prep
- Basics

OPPORTUNITIES:

- Find partners to do…
- R&D Budgets to fun shadowing & interns
- Train pre-service teachers
- Thematic teaching
- Pre-college level involvement
- Mentor schools
- Stimulating interests
- Communicate the skills needed
- To learn, unlearn & relearn

Team #4 Integrated Industry Approach

This group of leaders decides to build a coalition of industry leaders to meet again and invite leaders from other technical industries who affirm that they have the same issues, to leverage knowledge, resources, and action plans.

Elane Scott – moderator

WHO:

- Retiree from STEM higher education
- NASA Space Grant
- NASA HQ Education Enterprise
- Retired higher education and TMSTEC director
- Vice Chancellor UA, AMSTEC Board Chair, NASSMC Board
- Director of Education for US Space and Rocket Center
- Girl Scout Program Manager
- MSFC contractor in Education Programs Office
- NASA HQ

GOALS:

- Systemic change – how?
- Engage public
- Inspire for education
- Enhance quality of STEM education in TN
- For University of Alabama to be the "high point" in education between Austin & Chapel Hill
- More public policy support for STEM education
- More money for AMSTI
- Build coalitions at national level for STEM education

OBSTACLES:

- Funding
- Job openings ("prove" systems thinking)
- Money (large enough, engaging enough)
- Funding for personnel
- Money pits reading against math
- Shortage of second-year STEM college students during school year (for employment/internships)
- High turnover because of low salaries, fewer "moms"
- Shortage of excellence in complementary skills, comprehension/translation of STEM concepts
- Diversity of workplace, talent pool of minorities
- Absence of role models in STEM fields
- Loss of wisdom (graying workforce)

OPPORTUNITIES:

- Mentored research
- NASA fascination, leveraging name
- Excellent support from industry and academic stakeholders, in kind, leveraging, legislative support
- Early success of AMSTI

Build a coalition of industry leaders from a diverse group of service and technical industries who have the same issues to leverage knowledge, resources and action plans.

GOALS:

- Increase pipeline interest in STEM (study, participation)
- Provide industry mechanisms for more flexible workforce participation in education (service learning)
- Dual career path (management support for employee volunteer work with STEM)

STRATEGIES:

- Differentiate pay for STEM teachers (Unions and other impediments notwithstanding)
- Parental involvement (Fans – n.q.)

Team #5 Integrated Stakeholder Approach

Government, Education, Industry, Media, Health, and Community organizations align as stakeholders and address future work force issues using integrated systems processes and tools.

Rick Stephens – moderator

STAKEHOLDERS AND MOTIVATION:

- Government – NASA, US Department of Education
- Education
- Industry
- Media
- Professional Societies
- Parents
- Students

RESOURCES & ABILITY TO IMPLEMENT

- Policy, resources and behavior
- Build on what has proven successful
- Professional Development
- Resources
- Follow up

STAKEHOLDERS ALIGN AROUND A SET OF PRINCIPLES

- NASA's – customer focus, content, pipeline, diversity, evaluation, partnership/sustainability
- Stakeholders need to discuss/share guiding principles
- Who should organize?
- Decide on your desired level of impact (state, local, national) and pull appropriate stakeholders together – meet and align
- Need a basic understanding of students

OBSTACLES:

- Graying workforce
- Focus on future
- Communication among stakeholders
- Shielded opportunities (resistance to "fresh outs")
- Lack of mechanism to share information (in a common language) across stakeholders
- Emphasis on importance of technology – make it relevant
- Reduced funding
- Skill mix

OPPORTUNITIES:

- Aging workforce
- Informal science
- Challenge key stakeholders
- Keep dreaming
- To work collaboratively
- Uniquely positioned to collaborate
- Networking with peers – consensus on common ground

CHALLENGES:

- Individual's responsibility for own growth
- Curriculum peer-reviewed and endorsed at local, district and state levels
- Lack of prepared teachers
- Everyone is an expert and has an opinion
- Time issue and not primary responsibility – need our leaders to allocate the time and their attention
- Answering the "so what" question
- Anticipating future needs